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THE EFFECTS OF A WORK PLAN ON THE RESUMPTION OF AN INTERRUPTED TASK.

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A CONCEPT OF A TENSION SYSTEM IN A WORKING-MEMORY PLAN WAS STUDIED TO IMPLEMENT A COUNSELING APPROACH EFFECTIVE IN REDUCING THE RATE OF HIGH SCHOOL DROPOUTS. COLLEGE FRESHMEN AND HIGH SCHOOL STUDENTS (178) WERE EQUALLY DIVIDED BETWEEN EXPERIMENTAL AND CONTROL GROUPS EQUATED ON AGE, CLASS, SEX, AND INTELLIGENCE. ALL SUBJECTS WERE INDIVIDUALLY TESTED FOR THE TENDENCY TO RESUME A TASK AFTER BEING INTERRUPTED WITH AN ALTERNATE TASK. FREQUENCY OF RESUMPTION OF THE INTERRUPTED TASK AND LENGTH OF THE TIME INTERVAL BETWEEN COMPLETION OF THE ALTERNATE TASK AND RESUMPTION OF THE INTERRUPTED TASK CONSTITUTED THE DEPENDENT VARIABLES. CONCLUSIONS WERE--(1) SUBJECTS WITH A PLAN WILL TEND TO RESUME AN INTERRUPTED TASK MORE FREQUENTLY THAN SUBJECTS WHO HAVE NO PLAN, BUT NO MORE QUICKLY THAN SUBJECTS WITHOUT A PLAN. (2) SEX OF SUBJECTS INTERACTS WITH OTHER FACTORS TO PRODUCE DIFFERENTIAL EFFECTS UPON THE TENDENCY TO RESUME AN INTERRUPTED TASK. (JC)

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Cooperative Research Project No. S-361

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CHAPTER I

THE PROBLEM

The purpose of this research was to determine the effects of a plan held in the working memory of the subject upon his tendency to resume an interrupted task. The experimental demonstration of a tendency to resume an interrupted activity as a result of such a plan would provide a theoretical basis for the formulation of a guidance and counseling approach effective in reducing the rate of high school drop-outs. Based upon the view that a plan held in the working memory constitutes the essential connection between knowledge, evaluation, and action, guidance and counseling procedures for potential drop-outs could be formulated and utilized to stimulate individual assessment of personal position in the educational sequence and the clarification of specific steps for its completion. Such procedures based upon the concept of a plan in the working memory as a crucial factor leading to concrete action, rather than upon the Lewinian concept of a tension system, which theoretically supports the utilization of the techniques of persuasion, may aid in developing strong educational motivation.

CHAPTER II

OBJECTIVES AND HYPOTHESES

The tendency of subjects to resume interrupted tasks, as experimentally established by Ovsiankina and extensively investigated by later researchers, has generally been attributed to the existence of an undischarged tension system as defined by Lewin. This research project had as its objective the testing of an alternate explanation based on the concept of a plan held in the working memory. The rationale of this experiment and its basic design have been suggested by Miller, Galanter and Pribram. On the basis of their rethinking of Lewin's work they specifically predicted that a subject who performs a task requiring an internal memory record of his activity, if interrupted, will tend to resume the activity; whereas, a subject who performs a task requiring little or no record of what has been or remains to be accomplished, if interrupted, will not usually resume the task. Concerning their prediction, they suggest "We do not have experimental data with which to settle the point, but it appears to us to be a point on which data might help." [1]

In contrast to Lewin, who equated the dynamics of intentions with the dynamics of any other kind of motivated behavior

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1. G. A. Miller, E. Galanter, and K. H. Pribram, Plans and the Structure of Behavior, p. 66.

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by holding that an intention creates a quasi-need the positive valence of which can be removed by the appropriate action which fulfills the intention, Miller, Galanter, and Pribram see intentions as "the uncompleted parts of a plan whose execution has already begun."[1] They propose replacing the concept of valence with "the concept of specific criteria that must be met before the execution of a plan can continue."[2] Objects satisfying the criteria do not necessarily have to be valuable or satisfy needs. The fact that a sum of money might represent great value to two individuals, but that it tempts one to steal and the other it does not, to them illustrates clearly that the value of an object is not identical with its valence. They maintain that the concept of a plan provides a more adequate and simpler explanation. The part of a plan that is being executed is observed as having special access to consciousness in a kind of quick-access memory referred to by these authors as "working memory." Action, they hold, occurs when a plan has been put into the status of the working memory and there are incompleted parts of it (intentions). Thus, it can be seen that both Lewin's tension system and the concept of a plan in the working memory as set forth by Miller, Galanter, and Pribram have points in common, but also that some fairly clear distinctions can be made. It is this reformulation of

1. Ibid., p. 61.
2. Ibid., p. 64.

Lewin's concept of a tension system in terms of a plan in the working memory that served as the rationale for this experiment.

It was therefore hypothesized that:

1. An experimental group of subjects having a plan operating in the working memory will tend to resume an interrupted activity more frequently than a control group of subjects who have no such plan.
2. An experimental group of subjects having a plan operating in the working memory will tend to resume an interrupted task more quickly than a control group of subjects who have no such plan.

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1. K. Lewin, "The Conceptual Representation and the Measurement of Psychological Forces," Contributions to Psychological Theory, I, No. 4 (1938), pp. 1-247.

2. Ibid., p. 99.

3. Ibid., p. 97.

CHAPTER III

RELATED RESEARCH

The theoretical formulations of Kurt Lewin[1] and subsequent empirical investigations by him and his associates have led to a careful analysis of behavior associated with the interruption of tasks. Lewin's basic formulation that provided plausible explanation of behavior following interruption of a task and gave rise to an impressive quantity of empirical research was that of a "tension system."

Lewin conceived of the personality as analyzable in terms of an inner-personal sphere consisting of a number of regions each possessed with a certain tension level that can be discharged by the passing of energy from one region to another. He postulated that when a psychological need exists, a system in a state of tension exists within the individual,[2] and, furthermore, that the satisfaction of the need corresponds to a release of tension within the system.[3] Systems which are sufficiently connected can have substitute value for one another. Discharge of tension in one system can lead to discharge of tension in another as occurs, for instance, when the one system

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1. K. Lewin, "The Conceptual Representation and the Measurement of Psychological Forces," Contributions to Psychological Theory, I, No. 4 (1938), pp. 1-247.

2. Ibid., p. 99.

3. Ibid., p. 97.

corresponds to a subgoal of a more inclusive goal.[1] When the barriers between systems are firm and thus little or no dynamic relationship exists between systems, discharge of tension in one system does not lead to discharge of tension in another, and the tendency to perform the act represented by the latter system remains strong. Lewin conceived of needs as having the character of "organizing" behavior. One need or a combination of needs may set up derived needs (quasi-needs) equivalent to specific intentions.[2] For instance, an increase of intensity of need for recreation may lead to the tendency to go to the movies. By carrying out specific intentions through activity the derived needs and the original needs can be satiated. Lewin thus describes the internal phenomena associated with the resumption or non-resumption of interrupted tasks in terms of the theoretical formulation of a tension system and to a certain extent achieves an explanation in the sense of being able, although in a limited way, to predict certain behavior.

The research carried out by Lewin's associates and published in the Psychologische Forschung is appropriately summarized by Katz[3] who has provided a penetrating critical analysis in the light of her own comprehensive empirical

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1. K. Lewin, Principles of Topological Psychology, p. 175.

2. K. Lewin, "Behavior and Development as a Function of the Total Situation," Manual of Child Psychology, L. Carmichael, editor, p. 819.

3. E. Katz, Some Factors Affecting Resumption of Interrupted Activities by Preschool Children, pp. 5-12.

investigation that employed superior scientific techniques and controls. The account that follows surveys the experiments of Lewin's associates and later investigators that are most closely related to the present proposed study.

Ovsiankina[1] furnished what Lewin considered to be experimental proof that the effect of a purpose or intention is the formation of a quasi-need or tension system. Ovsiankina's way of theoretically conceptualizing the resumption of interrupted activities was that after the tension system corresponding to the intention is produced it drives toward discharge causing activities which serve to fulfill it. Her experiments, using both adults and children, clearly demonstrated that interrupted activities tend to be resumed and that a substitute act can have the effect of removing the tendency toward resumption. Furthermore, she initiated investigation of the influence upon the frequency of resumption of factors such as the kind of activity, the phase in which the activity was interrupted, the duration of the interruption, the nature of the act of of interruption, the presence or absence of the uncompleted task at the end of interruption, and the attitude and character of the subject.

Lissner[2] demonstrated that by interrupting the main

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1. Ibid., pp. 5-6; and K. Lewin, A Dynamic Theory of Personality, p. 242.

2. Ibid., pp. 6-8.

activity with a substitute task and observing the frequency of resumption the substitute value of a substitute activity could be computed in terms of a quotient. If the percentage of resumption without a substitute activity divided by the percentage of resumption with a substitute activity produced a quotient larger than one, it was regarded as having substitute value, and the larger the quotient, the greater the substitute value. She concluded the closeness of the correspondence of the tension system of the main task to the tension system of the substitute task determined the substitute value. The discharge of a tension system part of the same dynamic whole with another system leads to the discharge of the second system. Thus a task which is similar to the main task has high substitute value.

Mahler's[1] investigation, involving 155 adults and 35 children, tested the effects of different degrees of reality in substitute tasks. Overt action was regarded as most real, thinking as least real, and talking as an intermediate degree of reality. The finding was that the higher the degree of reality, the higher the substitute value quotient (as computed in Lissner's experiment).

Zeigarnik,[2] attacking the same problems as Ovsiankina, showed that when an intention corresponds to a tension system,

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1. Ibid., pp. 8-9.
2. Ibid., p. 9.

not only was there a tendency toward resumption of an uncompleted activity, but memory for uncompleted activities was much better, and uncompleted "continuous" tasks were recalled less frequently than uncompleted tasks with definite goals.

Pachauri[1] confirmed Zeigarnik's work providing, in addition, careful controls for the factors of duration, difficulty, and repetition of uncompleted and completed tasks. A task occupying a longer time was found to be recalled more often irrespective of it being an uncompleted or a completed task, a task too difficult diminished recall, and repetition deteriorated the main effect.

Rosenzweig[2] found that personality variables and purpose could influence the recall of uncompleted and completed tasks. Children rated high on "pride" by their teachers tended to recall completed tasks more frequently than uncompleted tasks, and children rated low on this variable tended to recall uncompleted tasks better. A group of thirty adults showed a greater frequency for recall of finished jig-saw picture puzzles than unfinished ones, and another group of thirty adults who believed they were helping the experimenter classify the puzzles

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1. A. R. Pachauri, "A Study of Gestalt Problems in Completed and Interrupted Tasks," British Journal of Psychology, XXV (April, 1935), pp. 447-457.

2. S. Rosenzweig, "The Recall of Finished and Unfinished Tasks as Affected by the Purpose With Which They Were Performed," Psychological Bulletin, XXX (November, 1933), p. 698. (Abstract.)

showed a greater frequency of recall for unfinished puzzles.

McKinney[1] was interested in determining if the activity itself rather than just the name of the activity was recalled more readily if it was interrupted rather than completed. An experimental group of subjects was instructed to learn a maze to the criterion of three correct trials while a control group was instructed to learn it to one correct trial. Experimental group subjects where interrupted after the first correct trial and showed greater retention than subjects in the control group.

Freeman[2] found that interruption of a mental or mental-muscular task produced an increase in muscular tension as indicated by a sensitive recording device which measured tonus changes in an isometric quadriceps muscle through patellar-tendon deformation. While confirming the finding that interrupted activities tend to be resumed, he suggested an alternate explanation in place of Lewin's concept of a tension system stating "Instead of assuming the directive influence of a blocked 'psychic tension', we find a neural analogy of task resumption in the competition of rival impulses for a final common path . . . the competition is rather between two unrelated response patterns for directive control of behavior . . . The continuation of interrupted mental work

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1. E. Katz, op. cit., p. 10.

2. G. L. Freeman, "Changes in Tonus During Completed and Interrupted Mental Work," Journal of General Psychology, IV (1930), pp. 309-334.

involves not only reinforcement of the dominant response pattern, but also the reciprocal inhibition of irrelevant responses . . . task resumption is conditioned upon the ability of the competing task-set (through summation or otherwise) to regain directive control."[1] He further suggests that neurological terms related to the concepts of competition, reinforcement, and inhibition may eventually be utilized to reinterpret all of Lewin's important research in this area.

Katz,[2] utilizing 175 children between the ages of four and one-half years and five and one-half years as subjects in 486 experiments, carried out an extensive investigation of the effects of varicus factors upon interrupted activities in a manner replete with detailed description, involving careful control, and employing statistical analysis characteristic of American Psychology. The results confirmed the findings of other investigators that interrupted activities tend to be resumed. Furthermore, her work provided specific and detailed information regarding the influence of factors such as point of interruption, presence or absence of alternate tasks, nature of interrupted tasks, intelligence of the subjects, and socio-economic status. She concluded that Lewin's concept of a tension system was a useful and plausible way of explaining these phenomena.

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1. Ibid., pp. 330-331.
2. E. Katz, op. cit., pp. 1-52.

Brown, in an analysis of the methods of Lewin, recognizes the lack of absolute psychological laws as a result of the formulations of Lewin and subsequent investigations stating "He is not yet able to set up his laws, but is simply in a position to show the material from which they must eventually come."[1] With full recognition of Lewin's factual contribution to the corroboration and illumination of Freudian mechanisms, Brown regards his major contribution as methodological, opening new paths of experiment leading to eventual formulations of laws in terms of energy exchanges and field equations.

In contrast to Lewin, who equated the dynamics of intentions with the dynamics of any other kind of motivated behavior by holding that an intention creates a quasi-need the positive valence of which can be removed by the appropriate action which fulfills the intention, Miller, Galanter, and Pribram see intentions as "the uncompleted parts of a plan whose execution has already begun."[2] They propose replacing the concept of valence with "the concept of specific criteria that must be met before the execution of a plan can continue."[3] Objects satisfying the criteria do not necessarily have to be valuable or satisfy needs. The fact that a sum of money might represent great value to two individuals, but that it tempts one to steal

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1. J. F. Brown, "The Methods of Kurt Lewin in the Psychology of Action and Affection," Psychological Review, XXXVI (1929), p. 220.

2. G. A. Miller, E. Galanter, and K. H. Pribram, Plans and the Structure of Behavior, p. 61.

3. Ibid., p. 64.

and the other it does not, to them illustrates clearly that the value of an object is not identical with its valence. They maintain that the concept of a plan provides a more adequate and simpler explanation. The part of a plan that is being executed is observed as having special access to consciousness in a kind of quick-access memory referred to by these authors as "working memory." Action, they hold, occurs when a plan has been put into the status of the working memory and there are incompleted parts of it (intentions). Thus, it can be seen that both Lewin's tension system and the concept of a plan in the working memory as set forth by Miller, Galanter, and Pribram have points in common, but also that some fairly clear distinctions can be made. It is this reformulation of Lewin's concept of a tension system in terms of a plan in the working memory that serves as the rationale of this proposed experiment.

CHAPTER IV

PROCEDURE

The sample used in this study consisted of 178 college freshmen and high school students divided approximately equally between experimental and control groups equated in terms of age, academic class, sex and I.Q. College freshmen numbered 142 subjects (76 male, 66 female) and high school students numbered 36 subjects (17 male, 19 female). The mean I.Q. of the total sample was 125.44.

All subjects were individually tested for the tendency to resume bead stringing activity after being interrupted with an alternate task consisting of construction of a block design. The independent variable was a plan operating in the working memory induced in each subject of the experimental group by the instructions of the experimenter. Individual subjects were seated on a bench in front of a dish of wooden beads placed near the end of a 14 foot table and instructed as follows: "Here is a dish of beads; string 25 of them."[1] Upon giving these instructions, the experimenter then left the room. The subject found it necessary to count the beads as he progressed in the task keeping a memory record which constituted holding a plan

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1. An earlier limited pilot study involving 35 Bates College students indicated the advisability of using a long bench which subjects could slide across without getting up from a sitting position and also the optimum distance between the beads and the blocks that resulted in neither all subjects resuming the original task nor all subjects not resuming.

in his working memory. This task also fulfilled Lewin's criteria for producing a tension system since it involved an intention to perform a given amount of activity. From both theoretical viewpoints, that of a plan operating in the working memory and that of the operation of a tension system, the prediction would be that the activity, if interrupted, would tend to be resumed.

An observer concealed behind a one-way viewing window, by means of an electrical circuit signalled the experimenter who returned in time to interrupt the subject at approximately the 15th bead strung by presenting him with an alternate task consisting of the construction of the Wechsler-Bellevue block design (Test No. 8, Card 5, 1947 edition) placed near the end of the table opposite the original task and 8 feet from it. The experimenter gave the following instructions: "Here is a block design pattern; please construct this design using all of these blocks" and again left the room. Upon completion of the block design by the subject, the concealed observer recorded both the fact of resumption or nonresumption of the original bead stringing task and the time interval between completion of the alternate task and possible resumption of the original task if it occurred within a 2 minute limit. The time interval was measured in seconds by means of an electrically operated stop clock. The frequency of resumption of the interrupted task and the length of the time interval between completion of the alternate task and the resumption of the interrupted task constituted the dependent variables. The experimenter returned

after the 2 minute limit, informed the subject that the experiment was concluded, and briefly questioned the subject asking him, "What have you heard about this experiment?"

The subjects of the control group were given the same tasks as the subjects of the experimental group but without the induction of a plan in the working memory. Instead of being requested to string a specific number of beads the subject was instructed by the experimenter as follows: "Here is a dish of beads; string all of them." Since these instructions did not require that the beads be counted, there was no plan held in the working memory of the subject.[1] The record, in this case, was external to the subject's working memory since the fact of no remaining beads in the dish served as evidence of the fulfillment of the task. However, these instructions did call for a given amount of activity and thus, according to Lewin, would produce a tension system. Under this condition the theoretical viewpoint regarding the operation of a tension system would lead to the prediction that the original task, if interrupted, would tend to be resumed, but the theoretical viewpoint regarding the operation of a plan in the working memory would lead to the prediction that the task would not tend to be resumed. The same procedure of interruption through

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1. Interviews with subjects during the pilot study supported the assumption that the instructions "String 25 of them" does induce the subject to count the beads, keeping a record in his memory, and the instructions "String all of them" does not lead to counting nor a memory record.

an alternate task and opportunity for resumption as outlined for the experimental group was followed for the control group.[1]

Two tests of significance for response differences between experimental and control groups were used. For a comparison of the difference between the number of subjects in the experimental group who resumed the original task and those who did not resume, with the difference between the number of subjects in the control group who resumed the original task and those who did not resume, the chi-square formula was utilized to indicate significance at the .05 level of confidence. The difference between responses of experimental and control groups in terms of the mean time interval between completion of the alternate task and resumption of the original task was determined and tested for significance at the .05 level of confidence by utilizing the "t" method for assessing the significance of differences between uncorrelated means of small samples.

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1. In light of the findings of many researchers in this area it is unlikely that the block design task which is basically different in nature from the bead stringing task could have substitute value thus reducing the tendency of the subjects to resume the interrupted task. Any substitute value that might exist would be equally operative in both experimental and control groups and could thus do no more than reduce the tendency to resume equally under both conditions.

CHAPTER V

ANALYSIS OF THE DATA AND FINDINGS

Initially, 184 subjects were tested, but the results of 6 subjects (3 in the Experimental Group and 3 in the Control Group) were deemed unusable as follows: the testing of one subject was terminated before the end of the 2 minute period due to assumed failure of the signaling system on the part of the experimenter; 2 subjects failed to follow instructions as given by the experimenter; and 3 subjects had heard sufficent details about the experiment to surmise correctly its purpose. With these 6 subjects the responses of 2 of them had supported the hypothesis of this experiment and the responses of 4 of them had not supported it. All data in this experimental report is based upon a sample of 178 subjects.

The comparability of the Experimental and Control Groups in regard to sex, intelligence, and age is supported by the data in Table I, page 31. This table reveals the presence of only a 2 percent difference between the number of males in the Experimental Group and the number of males in the Control Group as well as the number of females in the Experimental Group and the number of females in the Control Group. The difference between the intelligence of Experimental Group members with a mean I. Q. of 126.39 and the intelligence of Control Group members with a mean I. Q. of 124.51 is not significant. The Experimental Group subjects' mean age of 18.88 years is roughly comparable to that of the Control Group subjects whose mean

age is 23.02 years.

A frequency of 51 resumptions among the 88 Experimental Group subjects as indicated in Table II, page 32, represents resumptions on the part of 58 percent of Experimental Group subjects. A slightly higher percentage of females (60 percent) than males (56 percent) resumed the original task.

The mean time interval in seconds for subjects in the Experimental Group who resumed is revealed in Table III, page 32, to be 26.31 seconds; slightly higher for males (28.00 seconds) than for females (24.69 seconds).

Inspection of Table IV, page 33, reveals that the 90 Control Group members had a total resumption frequency of 38 which represents 42 percent of the Control Group subjects and that the frequency of resumption for males was 54 percent as compared to 29 percent frequency of resumption for females.

The time interval in seconds for subjects in the Control Group who resumed is shown in Table V, page 33, to be 28.07 seconds; higher for females (32.17 seconds) than for males (21.66 seconds).

An inter-group comparison of the frequency of resumption, as shown in Table VI, page 34, indicates that the Experimental Group subjects resumed a significantly greater number of times than the Control Group subjects thus confirming the hypotheses that subjects who have a plan operating in their working memory will tend to resume an interrupted activity more frequently than subjects who have no such plan.

Table VII, page 34, which presents an inter-group comparison of the time interval for subjects who resumed, reveals that the Experimental Group of subjects had a mean resumption time of 26.31 seconds while the Control Group had a mean resumption time of 28.07 seconds, but that this difference, though in the direction hypothesized, was not significant at the .05 level.

Though not explicitly investigated in this experiment, an examination of Table II, page 32, and Table IV, page 33, reveals that the sex of the subject interacted with other factors to produce differential effects upon the tendency to resume an interrupted task. In the Experimental Group experiencing the operation of a plan in the working memory 56 percent of the male subjects resumed the original task and 60 percent of the female subjects resumed; whereas, in the control group, where no such plan was operating, still 54 percent of the male subjects resumed but only 29 percent of the female subjects resumed. The operation of a plan in the working memory therefore had little effect upon the increasing of the resumptions of the male subjects over the control condition responses (2 percent greater frequency of resumption), but a relatively large effect upon increasing the resumptions of female subjects over control condition responses (31 percent greater frequency of resumption). While Miller, Galanter, and Pribram did not provide an explicit theoretical basis for this hypothesis concerning the time interval factor, it appeared to be a

logical secondary corollary derived from the implications of the primary hypothesis.

Several possible explanations might be offered for the fact that males showed relatively high frequencies of resumptions under both experimental and control conditions. First, this result might suggest the presence of a stronger psychological need on the part of males to prove themselves by heightened activity in what was obviously an ambiguous test situation. Second, and closely related to this first explanation, it is possible that males tended to have an internal plan even under control conditions although the data of this present experiment does not provide adequate information to confirm this idea. Third, it may be that the relatively high rate of male resumptions is a result that parallels patterns of response found in earlier studies of the effect of the sex of the experimenter and the sex of the subject upon performance: under a neutral condition lacking social reinforcement subjects performed at a higher level for experimenters of the same sex.[1] In this present experiment the experimenter was a male, and there was no social reinforcement involved. Thus, the level of performance for male subjects may have been heightened.

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1. K. T. Hill and H. W. Stevenson, "The Effects of Social Reinforcement vs. Nonreinforcement and Sex of E on the Performance of Adolescent Girls," Journal of Personality, XXXIII (March, 1965), pp. 30-36.

CHAPTER VI

CONCLUSIONS AND IMPLICATIONS

The following conclusions are drawn from the statistical analysis of the data:

1. Subjects who have a plan operating in the working memory will tend to resume an interrupted task more frequently than subjects who have no such plan.
2. Subjects having a plan operating in the working memory will not resume an interrupted task more quickly than subjects having no such plan.
3. The sex of subjects interacts with other factors to produce differential effects upon the tendency to resume an interrupted task.

The greater frequency of resumptions of an interrupted task in an experimental group of subjects having a plan operating in the working memory as compared with a control group of subjects having no such plan supports the superior utility of the reformulation of Lewin's concept of a tension system. This conceptual refinement delineates specific criteria that must be met preliminary to self-directed action and thus discloses a tangible variable that can be dealt with directly in the process of influencing human motivation. Applied to guidance and counseling procedures, this principle of a work plan may be useful in developing strong school motivation especially needed in potential school drop-out cases.

A methodology to implement this principle could be developed by utilizing the following techniques (as well as others to be developed) in the process of guidance and counseling:

a. asking the pupil to state his present educational and vocational plans
b. asking the pupil to anticipate consequences
c. asking the pupil to evaluate his present educational status
d. asking the pupil to summarize a series of steps that would be necessary for the achievement of a completed high school education
e. asking the pupil what value a given plan has

Such a "client-centered" approach would differ from an attempt on the part of the counselor to impart his own value system to the pupil. It would create a favorable emotional climate and raise pertinent questions that would enable the pupil to construct his own clear-cut plans out of the raw material of his own knowledge, understandings, and aspirations. A research design could be developed to test the application of this methodology to potential high school drop-out cases.

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APPENDIX

TABLE I

Description and Comparison of the Two Groups with Regard to Sex, Intelligence and Age

	Experimental Group		Control Group	
	Male	Female	Male	Female
N	45	43	48	42
Percentage	51	49	53	47
*Intelligence: Range	84-137	97-142	95-136	98-140
Mean	123.98	128.91	125.25	123.67
	126.39	125.44	124.51	
S.D.	9.61		8.82	
F	1.09			
a_{t}^{n}	.989 (N.S.)			
Age: Range	15-20	16-19	16-21	16-18
Mean	18.88		18.02	

* I.Q. scores for the 142 college freshman and 8 of the high school students in the sample were based on the Otis Self-Administering Test of Mental Ability. Available I.Q. measures for 28 of the high school students were as follows: 20 scores were based on the California Test of Mental Ability (10 in the Experimental Group and 10 in the Control Group); # scores were based on the Lorge-Thorndike Intelligence Test (# in the Experimental Group and # in the Control Group); 3 scores were based on the General Aptitude Test Battery (2 in the Experimental Group and 1 in the Control Group); and 1 score in the Control Group was based on the SRA Test of Educational Ability.

APPENDIX

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TABLE II

Frequency of Resumption Among Members of the Experimental Group

	Male	Female
N	45	43
Frequency of Resumption	25	26
Resumption Percentage	56	60
Total Number of Subjects	88	
Total Resumptions	51	
Total Resumption Percentage	58	

TABLE III

Time Interval in Seconds for Subjects in the Experimental Group Who Resumed

	Male	Female
N	45	43
Frequency of Resumption	25	26
Range (Seconds)	3-93	3-110
Mean	28.00	24.69
	26.31	
S.D.	24.94	26.50
	25.45	

TABLE IV

Frequency of Resumption Among Members of the Control Group

	Male	Female
N	48	42
Frequency of Resumption	26	12
Resumption Percentage	54	29
Total Number of Subjects	90	
Total Resumptions	38	
Total Resumption Percentage	42	

TABLE V

Time Interval in Seconds for Subjects in the Control Group Who Resumed

	Male	Female
N	48	42
Frequency of Resumption	26	12
Range (Seconds)	3-84	7-89
Mean	26.19	32.17
	28.07	
S.D.	21.66	27.33
	23-22.	

TABLE VI

Inter-Group Comparison of
Frequency of Resumption

	Experimental Group	Control Group
N	88	90
Resumption Frequency	51	38
Non-Resumption Frequency	37	52
χ^2	4.42	
d.f.	1	
Level of Significance	.05	

TABLE VII

Inter-Group Comparison of Time Interval in Seconds
for Subjects Who Resumed

	Experimental Group	Control Group
N	88	90
N (Resumed)	51	38
Range	3-110	3-89
Mean	26.31	28.07
S.D.	25.45	23.22
Difference	-1.76	
"t"	.335	
d.f.	177	
Level of Significance	N.S.	